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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,161	11/17/2000	Hiroshi Yamane	00F00057US	4564

466 7590 01/15/2002  
YOUNG & THOMPSON  
745 SOUTH 23RD STREET 2ND FLOOR  
ARLINGTON, VA 22202

EXAMINER
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TRAN, LEN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 01/15/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/714,161

Applicant(s)

YAMANE ET AL.

Examiner

Len Tran

Art Unit

1725

MF-9

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6,9,10 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,9,10 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

*Election/Restrictions*

1. In the previous office action, paper number 6, the restriction groups were incorrect and acknowledge by applicant. The correct groups are:

Ia: claims 1-6, 9, 10

Ib: claims 13-16

Ic: claim 17

II: claims 7, 8, 11, 12, and 18

Applicant's election with traverse of group Ia, claims 1-6, 9, and 10 and also suggest group Ic to be examined as well in Paper No. 8 is acknowledged. The traversal is on the ground(s) that apparatus of claim 7 cannot be practice a method other than that of claim 19. This is not found persuasive because the means of applying the current need not be 0.1 to 60 hz for each coil.

The requirement is still deemed proper and is therefore made FINAL.

Group Ia, claims 1-6, 9, and 10 along with new claim 19 and Group Ic, claim 17, will be examined.

*Claim Rejections - 35 USC § 112*

2. Claims 1-6, 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, there are no positive steps to the method claim.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9, 10, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0754 515 A.

EP '515 discloses the method of continuously casting metal by applying vibrating magnetic field to the molten metal. Vibrating the magnetic field by arranging electromagnets, each of which comprises an iron core and a coil wound over the iron core and applying AC current to the coil. The iron core either of individual single iron cores or comb shape iron core (col. 4, lines 20-25). The frequency of the AC current is between 0.1 to 60 hz (col. 5, lines 43-58). The AC and DC magnetic field are applied superimposed along the transverse width of the

mold (abstract). The superimposed is applied from at least one pair of magnetic poles arranged to face each other above or below an ejection port of an immersion nozzle (figures).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-6, 9, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisaki et al (US 5,746,268).

Fujisaki et al disclose the method of continuously casting metal by applying vibrating magnetic field to the molten metal. Vibrating the magnetic field by arranging electromagnets, each of which comprises an iron core and a coil wound over the iron core and applying AC

current to the coil. The iron core either of individual single iron cores or comb shape iron core. The frequency of the AC current is between 0.1 to 60 hz. The AC and DC magnetic field are applied superimposed along the transverse width of the mold. The superimposed is applied from at least one pair of magnetic poles arranged to face each other above or below an ejection port of an immersion nozzle.

Fujisaki et al fails to disclose wherein the current is a single phase AC current.

However, Fujisaki et al disclose a two or more phase current to generate a magnetic field. Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a single phase, since either single phase or two or more phases only depends on the require voltage the system needs. It is expected that the system of applicant's invention only needs low voltage, therefore a single phase would be more effective and applicable.

#### *Citation of Relevant Art*

8. US 4,905,756, US6,164,365, US 6,044,858, US 6,321,766 are cited to show state of the art.

*Inquiry*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Len Tran whose telephone number is (703)605-1175. The examiner can normally be reached on M-F, 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3602 for regular communications and (703)305-3602 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

Len Tran  
Examiner  
Art Unit 1725

LT  
January 8, 2002

  
ALEXANDRA ELVE  
PRIMARY EXAMINER